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Army Service Forces  
Quartermaster Corps  
CLIMATIC RESEARCH LABORATORY  
Lawrence, Massachusetts

DOCUMENT SECTION

Monthly Report - 1 December 1944

1. The following reports have been sent to the Office of The Quartermaster General for the approval of Colonel Georges F. Doriot:

Report No. OQMG-278 - 17 November 1944

Footgear, Traction

Appraisal of Fifteen Types of Footgear and Accessories on Varied Appropriate Terrain.  
Eight Figures.

Traction characteristics of fifteen types of shoes, on ten types of terrain or underfooting were studied in the laboratory and in the field.

The following items of footgear were studied:

Shoe, Service, Type II  
Shoe, Service, Hobnail  
Shoe, Service, Rubber Cleated Sole  
Shoepac, Type IV  
Shoepac, Type V  
Overshoe, Arctic, All Rubber  
Boot, Ski, Mountain, Rubber Cleated Sole  
Boot, Ski, Mountain, Tricouni Nail  
Boot, Ski, Mountain, Leather Sole  
Boot, Jungle  
Shoe, Felt, Arctic  
Shoe, Felt, Cold Climate  
Mukluk  
Crampons, 10-point  
Creepers, Ice

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SECURITY OFFICER	
Frank B. Rogers	

The traction was studied on the following:

Ground, dry and wet  
Ground, grassy slopes, dry and wet, with long and short grass  
Mud  
Snow, wet and dry  
Slopes with pine needle carpeting  
Ledges, rock  
Steel, wet, dry and oily

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R E S T R I C T E D

Fords, rocky bottom  
Floors, barracks  
Roots, slippery, fallen timber, branches

Leather soled shoes, especially the inflexible type such as the mountain ski boot and the arctic felt boot offer very little traction on the several terrains studied.

The best traction was provided by the Tricouni nailed boot. These nails were provided only on the mountain boot, a weighty and bulky item which has certain deficiencies as an item for combat. The hobnailed service shoe had little to commend it on a number of terrains, the traction of which was usually inferior to the sharp nailed footgear.

Traction provided by the best rubber soled items, the shoepac and the rubber cleated mountain boot, was similar. They performed well on most types of terrain but broke down on greasy rock, slimy wood and certain types of wet clay. The overshoe provided satisfactory traction on ice by virtue of the large sole.

The crampons were clearly superior on ice; the hobnails gave the poorest performance.

None of the items studied may be considered as satisfying most of the requirements of a traction sole for a variety of terrains. If a boot with nails is proposed it is important that care be exercised in placing the nails so that maximum traction is assured. A few well placed nails may be more effective than many placed at random. If stability is desired on rock ledges, it is important that they extend to the edge of the sole to provide stability.

The value of the instep in providing traction should be appreciated. This portion of the sole may be an integral part of traction on any terrain that is not essentially flat.

The heel of the boot should not be neglected. The service shoe with hobnails, for instance, lacks any traction device in the heel. A metal cleat to diminish wear on the heel inhibits rather than promotes traction.

Report No. 141 - 22 November 1944

Socks, Wool, Cushion Sole, Standard and Experimental  
Comfort, Utility, Thermal Insulation, Compressibility  
and Moisture Uptake During Seven Days' Wear.  
Five Tables, Eight Figures

The test was designed to study the utility, comfort, thickness and compressibility of four types of cushion sole socks during wear for at least one week under wet cold conditions simulating those encountered by combat and service troops; and to compare the thermal insulation of standard shrink resistant cushion socks with and without water repellent treatment

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when new; and to compare the thermal insulation of each of the four types of cushion socks after a week of continuous wear.

The types of cushion sole socks studied were:

Socks, Wool, Cushion Sole, Shrink Resistant and Water Repellent Treated (TLF 274), Spec. #PQD 236 E

Socks, Wool, Cushion Sole, Shrink Resistant, Spec. #PQD 238 E

Socks, Wool, Cushion Sole, 100 Percent Wool, Shrink Resistant Treated, Type 10

Socks, Cotton, Cushion Sole, 100 Percent Cotton, Type 1

It was concluded that there was no essential difference in performance between the 100 percent wool socks, the shrink resistant part wool, part cotton socks and the shrink resistant, water repellent treated part wool, part cotton socks. They were equally comfortable and were not different in warmth or water uptake on wading. The thickness under load was about alike after use, and the compressibility was similar.

The 100 percent cotton socks were decidedly inferior in performance to the other three types. They gave less adequate cushioning and stretched out of shape when wet. Their use was accompanied by increased trauma to the feet. They were inferior in thermal insulation to the 100 percent wool socks and the water repellent treated part wool, part cotton socks. They were thinner and less compressible than the other sockgear despite the fact that they were slightly heavier on corresponding test days.

2. The following test was completed and discussed in the Provisional Reports:

No. 153 - Socks, Cushion Sole, Sewn Toes.

3. In the Provisional Reports, tests on the following items were discussed:

Stove, Gasoline, Cooking, 1-Burner  
Goggles, Anti-Fog (Conf'd)  
Stove, Gasoline, Experimental  
Canvas, Tropical Proving, Progress Report  
Case, for Bag, Sleeping, Mountain  
Lighter, Individual  
Fuels, Solid, for Ration Heating  
Pads, Sleeping, Inflatable  
Radiometer, for Measuring Skin Temperature  
Vests, Cold Weather

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